



## Driveability and Handling

### Description of Driveability and Handling Evaluations

Procedures for the driveability and handling evaluations were developed by TRC based on an outline of requirements NREL provided. The following areas were rated subjectively by groups of four evaluators:

- Routine handling
- Emergency handling
- Acceleration
- Braking
- Ride quality
- Noise
- Comfort and convenience.

These areas of subjective evaluation are separate and distinct in relation to the objective performance measurements reviewed in other sections of this report.

### Preparations for Driveability and Handling Evaluations

In addition to the tasks indicated in *General Test Preparations*, the vehicles were ballasted to GVWR as required for the first event of the evaluation.

### Procedure for Driveability and Handling Evaluations

Each evaluator receives an instructions and rating booklet that contains complete procedures for conducting the driveability and handling evaluations.

Ratings were based on the following scale from SAE Recommended Practice J1441\*, "Subjective Rating Scale for Vehicle Handling:"

Very Poor		Poor		Fair		Good		Excellent	
1	2	3	4	5	6	7	8	9	10
Undesirable		Borderline		Desirable					

Symbols were assigned to designate the categories as follows:

Symbol	Rating	Number
★	Excellent	9–10
■	Good	7–8
●	Fair	5–6
○	Poor	3–4
□	Very Poor	1–2

These symbols were used on the data summary sheets for each pair of test vehicles.

The evaluators were designated A, B, C, and D (or W, X, Y, and Z). For each event, the control vehicle was evaluated first by A, followed immediately by B through D. After evaluating the control vehicle for an event, each evaluator immediately evaluated the candidate vehicle in comparison to the control vehicle. The combined driving sequence of the two vehicles for each event follows:

Control Vehicle	Candidate Vehicle
A	
B	A
C	B
D	C
	D

Each evaluator was instructed to form his or her own opinion about the vehicles and their performance without influence from anyone else including the other evaluators.

Each comparison was completed in a day and a half.

## **Routine Handling**

Ratings included in this section are:

- Driveability -- fully loaded/unloaded
- Drive/back into a parking space
- 90 degree turn from a stop
- Moderate slalom
- Accelerate/decelerate through increasing/decreasing radius turns.

## **Emergency Handling**

Ratings included in this section are:

- Single lane change
- Double lane change
- Single lane change with braking.

## **Acceleration**

Ratings included in this section are:

- Full throttle accelerations
- Typical urban/suburban accelerations.

## **Braking**

Ratings included in this section are:

- Typical urban/suburban braking
- Emergency braking
- Low coefficient braking.

## **Ride**

The ride qualities were evaluated with the vehicles unloaded and fully loaded. The evaluators were asked to rate the ride for smoothness and engine consistency.

## **Noise**

The noise qualities were evaluated while the vehicles were cruising, accelerating, and idling.

## **Comfort and Convenience**

Drivers were asked to rate the following for comfort and convenience:

- Driving position
- Seats
- Climate control
- Access
- Controls and displays
- Trunk or cargo area.

\* Society of Automotive Engineers Surface Vehicle Recommended Practice, J1441, "

Subjective Rating Scale for Vehicle Handling," Issued 1985-06, Reaffirmed 1992-02.

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